

Maths Mastery Curriculum

Year R and 1

Key resources to use

[Nrich activities](#) (problem solving and reasoning)

These ideas are linked with National Curriculum objectives and may be a good place to start with introducing problem solving and reasoning when applying a learnt skill. Click on the link to take you to the activity where there are suggestions on how to extend and simplify the problem to make it suitable at all levels or give you ideas of how to set up your own problem. The letters after each of the activities means: G= game, P= problem and I= investigation.

Assessment

The NCETM mastery assessment documents give some really good ideas on activities that can be used to assess the level of mastery of the children within particular mathematical areas. These include mastery activities and mastery at greater depth so you can extend the higher achievers. These are designed as activities, not to be used as a test. Yr 1 only I'm afraid.

Models and Images

These models and images gives ideas that can be used to support explanations of new concepts, as a fluency based starter or a game. In the folder, there are examples of the bar method that can be used to support the children in visualising what each of the four operations mean when working on extended problems.

Problem solving and reasoning books

These books were handed out towards the end of last year. They include 14 key strategies to develop reasoning within every lesson. These strategies can be used for starters, plenaries and as a whole class skill. They also include investigations to develop these skills and the disks include further ideas on how to develop this within your class as well as giving powerpoint examples of each problem.

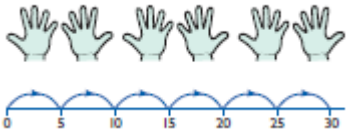
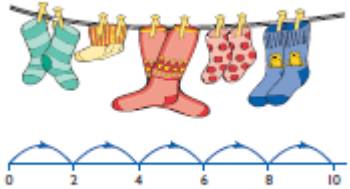
Calculation policy

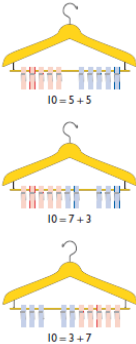
The Calculation Policy should be used when teaching calculations to ensure consistency and progression across the school and within phases. Whilst there may be methods that cover Year 3 and 4 for example, a discussion should take place between the teachers of the Year 3 class and the Year 4 class about the calculation used during units to ensure progression. Always go back as far as is needed for SEN or children that are struggling. The key is understanding rather than pushing a procedural method.

[Unit overview](#) For each unit, it will be useful to plan out the progression of objectives across the period of a whole unit. The link above will take you to a blank layout for you to use to design the progression across a unit. This should make weekly planning easier as you come to do it.

Stepping stones

This document can be useful in breaking an objective down into smaller steps to support the learning and development of the concept.

Term	Unit	EYFS objectives	Year 1 objectives	
Autumn	Place value (2-3 weeks)	<ul style="list-style-type: none"> ● <i>estimate a number of objects and check by counting</i> ● estimate and check by counting 1 or 2 objects reliably ● recognise if a number of objects is the same or different (working with numbers 1 and 2) ● count one or two reliably using abstract materials ● describe and create patterns that are the same and different ● recognise the numerals 1 and 2 ● <i>say which number is one more or one less than a given number</i> ● <i>estimate a number of objects and check by counting</i> ● count reliably with numbers from 1 to 5 ● place numbers 1-5 in order ● say which number from 1-5 is one more or one less than a given number ● recognise the numerals 1-5 ● understand the conservation of number <p>VOCAB Zero, number, one, two, three... to twenty and beyond, none, how many? count, count (up)to, count on (from, to) count back (from, to) same, different, is the same as more, less</p>	<ul style="list-style-type: none"> ● count to ten, forwards and backwards, beginning with 0 or 1, or from any given number ● count, read and write numbers to 10 in numerals and words ● identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least ● given a number, identify one more and one less ● count in multiples of twos <p>VOCAB zero , number, one, two, three... to twenty and beyond, teens numbers eleven, twelve, none, how many? count, count (up)to, count on (from, to) count back (from, to) count in ones, twos, fives, tens, is the same as, more, less, odd, even, few, pattern, pair, ones, tens , digit the same number as, as many as more, larger, bigger, greater, fewer, smaller, less, fewest, smallest, least, most, biggest, largest, greatest one more, one less, compare, between</p>	<ul style="list-style-type: none"> ● Nrich activities ● Number lines with numerals and words ● Identifying and representing numbers  <ul style="list-style-type: none"> ● Counting in 2's 

	<p>more, larger, bigger, greater, fewer, smaller, less, fewest, smallest, least, most, biggest, largest, greatest, before, after, next, between</p>		
<p>Addition and subtraction and reasoning within 10 (2 weeks)</p>	<ul style="list-style-type: none"> • say which number is one more or one less than a given number • estimate a number of objects and check by counting • count reliably with numbers from 1 to 10 • place numbers 0-10 in order • say which number from 1-10 is one more or one less than a given number • recognise the numerals 0-10 • use ordinal numbers: 1st, 2nd...last • understand the conservation of number • Understand zero <p>VOCAB Zero, number, one, two, three... to twenty and beyond, none how many? count, count (up)to, count on (from, to) count back (from, to) count in ones, is the same as more, less, odd, even, few, pattern, the same number as as many as, more, larger, bigger, greater, fewer, smaller, less, fewest, smallest, least, most, biggest, largest, greatest</p>	<ul style="list-style-type: none"> • represent and use number bonds and related subtraction facts [within 10] • add and subtract one-digit ... numbers [to 10], including zero • read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems <p>VOCAB Addition, near double, half, halve Subtract, take away, equals, is the same as, number bonds/pairs missing number add, more, and make, sum, total altogether double one more, two more... ten more how many more to make...? how many more is _ than _? how much more is _? take away how many are left / left over? one less, two less... ten less how many fewer is _ than _? how much less is _? difference between</p>	 <ul style="list-style-type: none"> • Rich activities

	<p>one more, one less, compare, order size, first, second, third... last, before, after, next, between</p>	<p>Bold words are new vocabulary</p>	
<p>Pattern and shape</p>	<ul style="list-style-type: none"> recognise, create and describe patterns explore characteristics of everyday objects and shapes and use mathematical language to describe them explore characteristics of everyday objects and shapes (focusing on 2d shapes) use mathematical language associated with shape <p>VOCAB Larger, smaller, symmetrical, pattern repeating pattern, match, draw size, bigger, flat, curved, straight round, sort, make, draw, corner side, rectangle (including square), circle, triangle, compare, beside, next to, edge</p>	<ul style="list-style-type: none"> recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles]; 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] describe position, direction and movement, including whole, half, quarter and three-quarter turns <p>VOCAB Underneath, centre, journey, quarter turn, three-quarter turn, rectangle (including square), circle, triangle whole turn, half turn, face, edge, vertex, vertices, cube, pyramid, sphere, cone, cuboid, cylinder, point, pointed, symmetry, symmetrical pattern</p> <p>Bold words are new vocabulary</p>	<ul style="list-style-type: none"> Nrich activities
<p>Numbers within 20</p>	<ul style="list-style-type: none"> say which number is one more or one less than a given number estimate a number of objects and check by counting count reliably with numbers from 0 to 15 place numbers from 0-15 in order say which number is one more or one less than a given number within 15 	<ul style="list-style-type: none"> count to twenty, forwards and backwards, beginning with 0 or 1, or from any given number count, read and write numbers from 1 to 20 in numerals and words identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least count in multiples of twos and fives 	<ul style="list-style-type: none"> Nrich activities

		<ul style="list-style-type: none"> estimate a number of objects and check by counting considering equal and unequal groups <p>VOCAB Zero, number, one, two, three... to twenty and beyond, teens numbers eleven, twelve... count, count (up)to, count on (from, to) count back (from, to) same, different, is the same as more, less, equal to more, larger, bigger, greater, fewer, smaller, less, fewest, smallest, least, most, biggest, largest, greatest, before, after, next, between, ones ,tens, digit, the same number as, as many as, one more, one less guess, how many...?, estimate, nearly close to, about the same as, just over, just under, too many, too few enough, not enough</p>	<p>VOCAB zero , number, one, two, three... to twenty and beyond, teens numbers eleven, twelve, none, how many? count, count (up)to, count on (from, to) count back (from, to) count in ones, twos, fives, is the same as, more, less, odd, even, few, pattern, pair, ones, tens , digit the same number as, as many as more, larger, bigger, greater, fewer, smaller, less, fewest, smallest, least, most, biggest, largest, greatest one more, one less, compare, between, numerals, number line, representation, greater than, less than, equal to</p>	
	<p>Within 20 (including addition and subtraction)</p>	<ul style="list-style-type: none"> count reliably with numbers from one to 20 say which number is one more or one less than a given number count reliably with numbers from 0 to 20 place numbers from 0-20 in order say which number is one more or one less than a given number within 20 estimate a number of objects and check by counting considering equal and unequal groups 	<ul style="list-style-type: none"> represent and use number bonds and related subtraction facts within 20 add and subtract one-digit and two-digit numbers to 20, including zero read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$ 	<ul style="list-style-type: none"> Nrich activities

		<p>VOCAB</p> <p>Zero, number, one, two, three... to twenty and beyond, teens numbers eleven, twelve...</p> <p>count, count (up)to, count on (from, to) count back (from, to)</p> <p>same, different, is the same as</p> <p>more, less, equal to</p> <p>more, larger, bigger, greater, fewer, smaller, less, fewest, smallest, least, most, biggest, largest, greatest,</p> <p>before, after, next, between,</p> <p>ones ,tens, digit, the same number as, as many as, one more, one less</p> <p>guess, how many...?, estimate, nearly close to, about the same as, just over, just under, too many, too few</p> <p>enough, not enough</p>	<p>VOCAB</p> <p>Addition, near double, half, halve</p> <p>Subtract, take away, equals, is the same as, number bonds/pairs</p> <p>missing number, one digit, two digit,</p> <p>equal to, is the same as, problem,</p> <p>representation,</p>	
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Spring	Measures	<ul style="list-style-type: none"> • <i>use everyday language to talk about size, weight, capacity</i> • <i>estimate, measure, weigh and compare and order objects</i> • compare objects and quantities • solve size problems (i.e. length) • solve weight and capacity problems explore measuring objects using non-standard units <p>VOCAB</p> <p>Measure, size, compare, guess, estimate, enough, not enough, too much, too little, too many, too few, nearly, close to, about the same as, just over, just under</p> <p>Metre, length, height, width, depth, long, short, tall, high, low, wide,</p>	<ul style="list-style-type: none"> • compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]; mass/weight [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] • measure and begin to record the following: lengths and heights; mass/weight; capacity and volume <p>VOCAB</p> <p>Measurement, roughly, centimetre, ruler, metre stick, kilogram, half kilogram, litre, half litre, capacity, volume, more than, less than, quarter full</p> <p>Measure, size, compare, guess, estimate, enough, not enough, too</p>	<ul style="list-style-type: none"> • Rich activities
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		<p>narrow, thick, thin, longer, shorter, taller, higher etc., longest, shortest, tallest, highest etc., far, near, close</p> <p>Weigh(s), balances, heavy, light, heavier than, lighter than, heaviest, lightest, scales</p> <p>Full, empty, half full, holds, container</p>	<p>much, too little, too many, too few, nearly, close to, about the same as, just over, just under</p> <p>Metre, length, height, width, depth, long, short, tall, high, low, wide, narrow, thick, thin, longer, shorter, taller, higher etc., longest, shortest, tallest, highest etc., far, near, close</p> <p>Weigh(s), balances, heavy, light, heavier than, lighter than, heaviest, lightest, scales</p> <p>Full, empty, half full, holds, container</p> <p>BOLD IS NEW VOCABULARY</p>	
<p>Exploring calculation strategies (through problem solving with addition and subtraction)</p>		<ul style="list-style-type: none"> • <i>add and subtract two single-digit numbers and count on or back to find the answer</i> • <i>estimate a number of objects and check by counting up to 20</i> • use quantities and objects, count on or back to add and subtract • estimate a number of objects and check by counting • subitise within 5 • represent and use number bonds within 5 <p>VOCAB</p> <p>add, more, and, make, sum, total, altogether, double, one more, two more... ten more, how many more to make...?, how many more is _ than _ ?, how much more is _ ?</p> <p>take away, subtract, how many are left / left over? how many have gone? one less, two less... ten less, how many</p>	<ul style="list-style-type: none"> • represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 20, including zero • read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as • $7 = \square - 9$ <p>VOCAB</p> <p>Addition, near double, half, halve</p> <p>Subtract, take away, equals, is the same as, number bonds/pairs</p> <p>missing number, one digit, two digit, equal to, is the same as, problem, representation, solve, calculation</p>	<ul style="list-style-type: none"> • Nrich activities

	<p>fewer is _ than _?, how much less is _?, difference between</p> <p>how many? count, count (up)to, count on (from, to) count back (from, to)</p> <p>Guess, how many...? Estimate, nearly, close to, about the same as, just over, just under, too many, too few, enough, not enough</p>		
Numbers above 20	<ul style="list-style-type: none"> • say which number is one more or one less than a given number • count reliably to 50 • explore counting on and back from any number within 50 • place numbers from 0-50 in order • estimate a number of objects and check by counting <p>VOCAB is the same as, more, less, odd, even, how many? count, count (up)to, count on (from, to) count back (from, to), ones, tens, digit, the same number as, as many as more, larger, bigger, greater, fewer, smaller, less, fewest, smallest, least, most, biggest, largest, greatest one more, ten more, one less, ten less, compare, order, size, first, second, third... twentieth, last, last but one, before, after, next, between</p>	<ul style="list-style-type: none"> • count to fifty, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers from 1 to 50 in numerals and words • identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least • given a number, identify one more and one less <p>VOCAB Numeral, twenty-one...fifty, forwards, backwards, equal to, most, least, many</p>	<ul style="list-style-type: none"> • Nrich activities
Time	<ul style="list-style-type: none"> • use everyday language to talk about time • use mathematical language to describe size and position <p>VOCAB</p>	<ul style="list-style-type: none"> • tell the time to the hour and half past the hour and draw the hands on a clock face to show these times • recognise and use language relating to dates, including days of the week, weeks, months and years 	<ul style="list-style-type: none"> • Nrich activities

		<p>Time, days of the week, day, week, birthday, holiday, morning, afternoon, evening, night, bedtime, dinner time, playtime, today, yesterday, tomorrow, before, after, next, last, now, soon, early, late, quick, quicker, quickest, quickly, slow, slower, slowest, slowly, old, older, oldest, new, newer, newest, takes longer, takes less time, hour, minutes, o'clock, clock, watch hands</p>	<ul style="list-style-type: none"> compare, describe and solve practical problems for time [for example, quicker, slower, earlier, later] and measure and begin to record time (hours, minutes, seconds) sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] <p>VOCAB</p> <p>months of the year, seasons: spring, summer, autumn, winter, weekend, month, year, earlier, later, first, midnight, date, how long ago? how long will I be to...? how long will it take to...? how often? always, never, often, sometimes, usually, once, twice, half past, quarter past, quarter to, clock face, hour hand, minute hand, hours, minutes</p>	
Using calculation strategies within 50		<ul style="list-style-type: none"> add and subtract two single-digit numbers and count on or back to find the answer estimate a number of objects and check by counting up to 20 use quantities and objects, count on or back to add and subtract estimate a number of objects and check by counting subitise within 10 <p>represent and use number bonds within 10</p> <p>VOCAB</p> <p>add, more, and, make, sum, total, altogether, double, one more, two</p>	<ul style="list-style-type: none"> represent and use number bonds and related subtraction facts within 20 add and subtract one-digit and two-digit numbers to 50, including zero read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$ 	<ul style="list-style-type: none"> Nrich activities

		<p>more... ten more, how many more to make...?, how many more is _ than _?, how much more is _?</p> <p>take away, subtract, how many are left / left over? how many have gone? one less, two less... ten less, how many fewer is _ than _?, how much less is _?, difference between</p> <p>how many? count, count (up)to, count on (from, to) count back (from, to)</p> <p>Guess, how many...? Estimate, nearly, close to, about the same as, just over, just under, too many, too few, enough, not enough</p>	<p>VOCAB</p> <p>Addition, near double, half, halve, subtract, equals, is the same as, number bonds/pairs, missing number,</p>	
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Summe r	Shape	<ul style="list-style-type: none"> • <i>talk about properties of shapes</i> • <i>explore characteristics of everyday objects and shapes and use mathematical language to describe them</i> • explore characteristics of everyday objects and shapes (focusing on 3d shapes) • use mathematical language associated with shape • classify and sort shapes • recognise, create and describe patterns with shapes <p>VOCAB shape pattern, flat, curved, straight, round, hollow, solid, sort, make, build, draw, size, bigger, larger, smaller, symmetrical, pattern, repeating pattern, match, corner, side, rectangle</p>	<ul style="list-style-type: none"> • recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles]; 3-D shapes [for example, cuboids (including cubes), pyramids and spheres • describe position, direction and movement, including whole, half, quarter and three-quarter turns <p>VOCAB Underneath, centre, journey, quarter, turn, three-quarter turn, point, pointed, cuboid, cylinder, symmetry, symmetrical pattern</p>	<ul style="list-style-type: none"> • Nrich activities
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		(including square), circle, triangle, face, edge, vertex, vertices, cube, pyramid, sphere, cone, pattern, puzzle, what could we try next? how did you work it out? Recognise, describe, draw, compare, sort		
Grouping and sharing (multiplication and division)	<ul style="list-style-type: none"> • <i>solve practical problems that involve combining groups of 2, 5 or 10, or sharing into equal groups</i> • solve practical problems that involve grouping and sharing • explore counting on in steps of 2 from zero • <i>solve problems, including doubling, halving and sharing</i> • Explore the relationship between doubling and halving <p>VOCAB Sharing, doubling, halving, number patterns, grouping, count in 2s, count in 5s, count in 10s, zero, equal</p>	<ul style="list-style-type: none"> • solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher • recognise, find and name a half as one of two equal parts of an object, shape or quantity • recognise, find and name a quarter as one of four equal parts of an object, shape or quantity <p>VOCAB Multiplication, multiply, multiplied by, multiple, division, dividing, grouping, array Fraction, equal part, equal grouping, equal sharing, one of two equal parts, one of four equal parts</p>	<ul style="list-style-type: none"> • Nrich activities 	
Money	<ul style="list-style-type: none"> • <i>Recognise coins and their values</i> • <i>compare quantities and objects to solve problems</i> • use everyday language to talk about money • compare the value of coins • use quantities and objects to count on and back to add and subtract <p>VOCAB</p>	<ul style="list-style-type: none"> • recognise and know the value of different denominations of coins and notes • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as • $7 = \square - 9$ <p>VOCAB Change, dear, costs more, cheap, costs less, cheaper, costs the same as, how much...? how many...? Total</p>	<ul style="list-style-type: none"> • Nrich activities 	

		<p>Money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, 1p, 2p, 5p, 10p, 20p, 50p, £1, £2</p>	<p>Addition, near double, half, halve, subtract, equals, is the same as,</p>	
<p>Working within 100</p>		<ul style="list-style-type: none"> • say which number is one more or one less than a given number • estimate a number of objects and check by counting • solve practical problems that involve combining groups of 2, 5 or 10, or sharing into equal groups • count reliably to 100 • explore counting on and back from any number within 50 • place numbers from 0-100 in order • say which number is one more or one less than a given number • solve problems, including grouping and sharing • estimate a number of objects and check by counting • explore counting on in steps of 5 and 10 from zero <p>VOCAB</p> <p>is the same as, more, less, odd, even, how many? count, count (up)to, count on (from, to) count back (from, to), ones, tens, digit, the same number as, as many as</p> <p>more, larger, bigger, greater, fewer, smaller, less, fewest, smallest, least, most, biggest, largest, greatest</p> <p>one more, ten more, one less, ten less, compare, order, size, first, second,</p>	<ul style="list-style-type: none"> • count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers from 1 to 20 in numerals and words • identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least • given a number, identify one more and one less • read and write numbers to at least 100 in numerals and in words <p>VOCAB</p> <p>Numeral, twenty-one...one hundred, forwards, backwards, equal to, most, least, many, less than, fewer than, most, least</p>	<ul style="list-style-type: none"> • Nrich activities

		third... twentieth, last, last but one, before, after, next, between, zero	
Addition and subtraction	<ul style="list-style-type: none"> • add and subtract two single-digit numbers and count on or back to find the answer • compare quantities and objects to solve problems • solve problems, including doubling, halving and sharing • say which number is one more or one less than a given number • use quantities and objects to add and subtract two single-digit numbers <p>VOCAB</p> <p>add, more, and, make, sum, total, altogether, double, one more, two more... ten more, how many more to make...?, how many more is _ than _?, how much more is _?</p> <p>take away, subtract, how many are left / left over? how many have gone? one less, two less... ten less, how many fewer is _ than _?, how much less is _?, difference between</p> <p>how many? count, count (up)to, count on (from, to) count back (from, to) Guess, how many...? Estimate, nearly, close to, about the same as, just over, just under, too many, too few, enough, not enough</p>	<ul style="list-style-type: none"> • represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 100, including zero • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers (Y2) • read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <p>$7 = \square - 9$</p> <p>VOCAB</p> <p>Addition, near double, half, halve, subtract, equals, is the same as, number bonds/pairs, missing number, problem, problem solving, mental, mentally, explain your thinking, one digit, two digit</p>	<ul style="list-style-type: none"> • Nrich activities